⚠ WARNING:

This device may not alarm at low carbon monoxide levels. This detector has not been investigated for carbon monoxide detection below 30 ppm.

Warning: This carbon monoxide alarm is designed to detect carbon monoxide gas from ANY source of combustion. Not suitable as a smoke alarm or for detecting other gases. This device is not suitable for installation in a hazardous location, as defined in the National Electrical Code.

⚠ WARNING:

This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial and industrial standards. Individuals with medical problems may consider using warning devices which provide audible and visual signals for carbon monoxide concentrations under 30 ppm.

CAUTION:

Your unit is constantly monitoring the air and will go into full alarm if ongoing, hazardous levels of CO are detected. Follow the instructions in section K if the full alarm sounds.

WARNING: This device will only alarm if carbon monoxide is detected. If not responded to, the presence of carbon monoxide can be fatal. For list of sources of carbon monoxide, see Sections C and D.

CAUTION: This alarm will only indicate the presence of carbon monoxide at the sensor. Carbon monoxide may be present in other areas.

! WARNING

Installation of this CO alarm should not be used as a substitute for proper installation, use, and maintenance of fuel burning appliances, including appropriate ventilation and exhaust systems.

Getting Started

Step 1

Determine the best location for your CO alarm(s). Usually this is in or near bedrooms. Your alarm can be used in a desk top or a wallmount (using the screws and anchors provided) configuration. Refer to Section F.

Step 2

Connect the battery of your CO alarm and install the alarm. Refer to Section J.

Step 3

The CO alarm will go through a test sequence (the horn will beep quickly 4 times, followed by 5 seconds of silence, followed by 4 quick beeps - this is the alarm pattern that you will hear in the event of an emergency). Additionally the red LED will flash synchronized with each beep and it will be followed by one flash of both green and amber LEDs at the end of the second series of beeps. Finally the LCD display (where equipped) will turn on. If you press the test button this sequence will repeat itself. Refer to Section H.

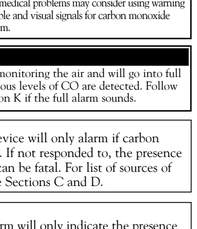
Step 4

While testing the CO alarm, have someone else check that the alarm can be heard easily from the sleeping areas, Refer to Section H.

A. Indicators

Your carbon monoxide alarm displays information from four sources:

1. The 3 LED indicator lights.
2. The loud 85dB horn.
3. The LCD display (where equipped).
4. No Battery, yellow indicator.



LIGHTS:

The indicator lights are three different colours:

Green: Indicates that the unit is receiving power.

- If the alarm is operating on a battery supply, then this LED will flash once per minute.
- If the Green LED is steady off, then it is not receiving power.
- If the product has more than six years from installation, as part of the "End of Product Life Signal", this LED will flash 2 times every minute. Refer to Section H.

Red: Indicates an alarm condition, and that there is a dangerous level of carbon monoxide present. Refer to Section K.

- It will flash quickly 4 times (synchronized with the horn), repeating every 5 seconds, for the first 4 minutes.
- After 4 minutes it will flash quickly 4 times (synchronized with the horn), repeating every minute.

Yellow: Indicates malfunction or "End of Product Life". Refer to Section H.

- It will flash every minute synchronized with the horn.
- At "End of Product Life", synchronized with the above, the green LED will flash quickly 2 times per minute.

HORN:

The horn generates 3 different patterns.

4 beeps: Indicates an alarm condition, and that there is a dangerous level of carbon monoxide present. Refer to Section E.

- It will beep quickly 4 times (synchronized with the Red LED), repeating every 5 seconds, for the first 4 minutes.
- After 4 minutes it will beep quickly 4 times (synchronized with the Red LED), repeating every minute.

2 beeps: Indicates the battery is low. Refer to Section J.

- It will beep quickly 2 times, repeating every minute.

1 beep: Indicates malfunction or "End of Product Life". Refer to Section H.

- It will produce a single beep, repeating every minute.

LCD:

The LCD display displays 4 pieces of information, pressing the "Display" button allows you to toggle between screens.

PPM:

This is the default display value. It shows the CO concentration that the unit is sensing. The lowest value that the unit will show is 30 ppm.

PEAK:

This is the highest CO concentration (in ppm) that the unit has sensed in the last 12 hours.

COHB:

This approximates your exposure to carbon monoxide (see Section E).

LOW BATTERY:

If your alarm has a low battery, the low battery icon will be displayed.

NO BATTERY INDICATOR:

The battery out indicator is located on the front of the alarm. It displays "NO BATTERY" when the battery has been removed.

B. What is carbon monoxide and why should you be concerned?

Carbon monoxide is a dangerous, poisonous gas. It is often referred to as the Silent Killer because it has no odor or taste and it can't be seen. The presence of carbon monoxide inhibits the blood's capacity to transport oxygen throughout the body, which can eventually lead to brain damage.

In any enclosed space (home, office, recreational vehicle or boat) even a small accumulation of carbon monoxide can be dangerous.

C. What are the potential sources of carbon monoxide?

Although many products of combustion can cause discomfort and adverse health effects, it is carbon monoxide (CO) that presents the greatest threat to life.

CO is produced by the incomplete combustion of fuels such as natural gas, propane, heating oil, kerosene, coal, charcoal, gasoline or wood. The incomplete combustion of fuel can occur in any device that depends on burning for energy or heat such as furnaces, boilers, room heaters, hot water heaters, stoves or grills and in any gasoline-powered vehicle or engine (e.g., generator set or lawnmower). Tobacco smoke also adds CO to the air you breathe.

When properly installed and maintained, your natural gas furnace and hot water heater do not pollute your air space with carbon monoxide. Natural gas is known as a "clean burning" fuel because under correct operating conditions the combustion products are water vapor and carbon dioxide, which are not toxic. (Carbon dioxide (CO2) is also present in the air we exhale and is necessary for plant life.) The products of combustion are vented from furnaces and water heaters to the outside by means of a flue duct or chimney.

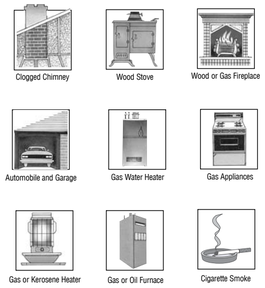
Correct operation of fuel-burning equipment requires two key conditions. There must be:

- An adequate supply of air for complete combustion
- Proper venting of the products of combustion from the furnace through the chimney, vent or duct to the outside

Typical Carbon Monoxide Problems

1. Equipment problems, due to defects, poor maintenance, damaged or cracked heat exchangers
2. Collapsed or blocked chimneys or flues, dislodged, disconnected or damaged vents
3. Downdraft in chimneys or flues; this can also be caused by very long or circuitous flue runs, improper location of flue exhaust or wind conditions
4. Improper installation or operation of equipment, chimneys or vents
5. Air tightness of house envelope results in a lack of air for the combustion process
6. Inadequate exhaust of space heaters or appliances
7. Exhaust ventilation/fireplace competing for air supply

D. Potential sources of carbon monoxide in your home:



E. What are the possible symptoms of carbon monoxide poisoning?

Carbon monoxide (CO) is odorless, colorless, tasteless and very toxic. When inhaled, it produces an effect known as chemical asphyxiation. Injury is due to the combining of CO with the available hemoglobin in the blood, which lowers the oxygen-carrying capacity of the blood. In the presence of carbon monoxide, the body is quickly affected by oxygen starvation.

The following symptoms are related to carbon monoxide poisoning and should be discussed with all members of the household so that you know what to look for:

Extreme Exposure (more than 40% COHb): Unconsciousness, convulsions, cardio-respiratory failure, death

Medium Exposure (15% to 40% COHb): Severe throbbing headache, drowsiness, confusion, vomiting, fast heart rate

Mild Exposure (less than 15% COHb): Slight headache, nausea, fatigue (often described as "flu-like" symptoms)

Many cases of reported carbon monoxide poisoning indicate that while victims are aware they are not well, they become so disoriented then are unable to save themselves by either exiting the building or calling for assistance.

Young children and household pets may be the first affected. Exposure during sleep is particularly dangerous because the victim usually does not awaken.

For most people, mild symptoms generally will be felt after several hours of exposure to 100 ppm of carbon monoxide. Higher levels will lead to more severe symptoms or death.

F. Where should you install the alarm?

Since carbon monoxide moves freely in the air, the suggested location is in or as near as possible to sleeping areas of the home. The human body is most vulnerable to the effects of carbon monoxide during sleeping hours. For maximum protection, a carbon monoxide alarm should be located outside primary sleeping areas or on each level of your home. The diagram suggests ideal locations for alarms in the home.

The electronic sensor detects carbon monoxide, measures the concentration and sounds a loud alarm before a potentially harmful level is reached.

To reduce the likelihood of nuisance tripping of the device's alarm circuit and to prevent damaging the sensor:

- Do not install or place the alarm
  - In locations where the normal ambient temperature is below 40°F (4.4°C) or exceeds 100°F (37.8°C)
  - Within 5 ft. (1.5 m) of any cooking appliance
  - In damp or very humid areas or next to bathrooms with showers. Install detectors at least 5 ft. (1.5m) away from bathrooms.
  - In close proximity to an automobile exhaust pipe; this will damage the alarm.
- Accommodation spaces should be well ventilated when household cleaning supplies or similar contaminant's are used.

G. How should you install the alarm?

Your American Sensors Carbon Monoxide Alarm is easy to install to protect you and your family in your home, cottage, cabin and office.

To work properly, the alarm unit must not be blocked by furniture or draperies.

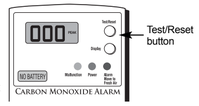
To provide maximum protection please allow up to 72 hours for your CO alarm to fully initialize. It will, however, immediately warn you of dangerous CO levels if they are present in your home.

This unit may be used as a table top or desk top model. Simply place the unit on its base in a location suggested in Section F. Alternatively, to mount this model on a wall follow the instruction on the wall mount template included with the alarm.

Important: Before installing this unit, select a location per Section F and connect the battery as per Section J.

H. How can you Test/Reset the alarm?

A green power light indicates that power is supplied. For the display model CO8B-D, the display will show "000".



To test the alarm (wait at least ten minutes after installing it), press and release the Test/Reset button. The alarm will sound two series of 4 short beeps and the red LED will flash.

To reset after an alarm, press the Test/Reset button to silence or reset the unit. Follow the instructions in Section K, which tell you what to do after an alarm. This Carbon Monoxide Alarm is designed to do a continuous self-diagnostic check of its micro processing circuitry when in use.

A malfunctioning unit is indicated by a short single beep and flashing yellow LED every 60 seconds. If this occurs, reset the unit. If the unit again beeps intermittently, do not use this unit.

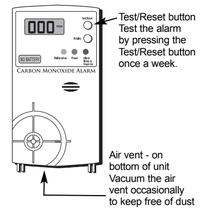
The "End of Product Life" signal is similar to the malfunction signal. The only difference is the addition of 2 quick flashes of the green LED synchronized with the beep and yellow LED flash every 60 seconds.

For questions about your CO alarm, please contact:

1-800-387-4219

I. How can you maintain your alarm?

An alarm is useful only if it works. The following illustration explains proper maintenance:



Your alarm should be tested at least once per week by pushing the Test/Reset button as outlined in Section H.

J. Battery Installation & Replacement

Under normal conditions your battery should last about one year. The green light on the unit will briefly blink about every 60 seconds if the battery is adequately powering the unit.

This CO alarm has a low battery warning to warn you that the battery is running low. This is a double beep approximately every minute. This low battery warning will continue for at least 7 days. Replace your battery immediately if this occurs to ensure ongoing protection.

Battery Replacement

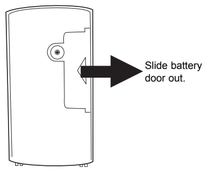
! WARNING

- Use recommended batteries only.
- Use of different battery may have a detrimental effect on the alarms operation
- Constant exposures to high or low temperatures or high humidity may reduce the battery life.
- This carbon monoxide alarm will not operate with a dead or missing battery or if the battery door is open or not closed completely.
- Do not remove the battery to use in any toys, remote controls or other household devices.
- Do not try to open the alarm except for the battery door. Opening the main housing of the alarm may damage the unit and will void the warranty:

Recommended Battery: Use only Duracell MN/MX1604, Gold Peak GP1604A or Energizer X22 (available at most general retail stores).

Battery Installation Instructions

1. If the alarm is wall mounted, remove it from the wall by gently sliding it upwards to lift it off the key hole slots.
2. Slide the battery door out.
3. Connect fresh battery to battery snap. Replace the battery compartment door.
4. Test the unit by pressing the Test/Reset button as per Section H to confirm the unit is powered.
5. Return the alarm to its original location.



⚠K. What should you do if the ALARM sounds?

If potentially harmful levels of carbon monoxide are detected, your unit will go into full alarm. The alarm signal consists of 4 rapid beeps repeating every 5 seconds, with the red LED light flashing every time the alarm horn beeps.

If the full alarm sounds respond as follows:

! WARNING

Actuation of your CO alarm indicates the presence of carbon monoxide (CO) which can KILL YOU. If alarm signal sounds:

1. Operate reset/silence button;
2. Call your emergency services ( ), [fire department or 911];
3. Immediately move to fresh air–outdoors or by an open door/window. Do a head count to check that all persons are accounted for. Do not reenter the premises nor move away from the open door/window until the emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal condition;
4. After following steps 1–3, if your alarm reactivates within a 24 hour period, repeat steps 1–3 and call a qualified appliance technician ( ) to investigate for sources of CO from fuel burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection have the equipment serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturer's instructions, or contact the manufacturer directly, for more information about CO safety and this equipment. Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

What to do after resetting the alarm following an alarm?
A full continuous alarm within six minutes after reset confirms ongoing presence of harmful levels of carbon monoxide. If this occurs follow instructions 1 - 3 above.

What to do after a carbon monoxide problem has been corrected?
After a carbon monoxide problem has been corrected reset your alarm by pushing the Test/Reset button as per the instructions on Section H.

L. Technical Information

Your alarm utilizes a proprietary Electronic Sensing Technology that permits the unit to vary the exposure time before the alarm sounds based on carbon monoxide concentrations.

Exposure Times

The carbon monoxide concentrations and time standards for the alarms are as follows:

The Full Alarm Activates

- Within 60-240 minutes at exposures of 70 ppm
- Within 10-50 minutes at exposures of 150 ppm
- Within 4-15 minutes at exposures of 400 ppm

Specifications	
Power Supply	Duracell MN/MX1604, Gold Peak GP1604A or Energizer X22 ONLY
Dimensions	(5.25" x 2.80" x 2.00")
Normal Operating Conditions:	
Operating Temperature	4.4°C to 37.8°C (40°F to 100°F)
Relative Humidity	30% to 70%
Alarm	85 dB at 10 ft

M. Limited Warranty

Your American Sensors carbon monoxide is warranted for six (6) years from the date of purchase against defect in material and workmanship. Units returned to Dicon Global Inc. with proof of purchase date during this period as a result of such defects will be repaired, or replaced at Dicon Global Inc.'s option. This warranty only covers defects in material or workmanship in normal residential use. This warranty does not cover damage resulting from negligent handling, misuse, or lack of reasonable care. This warranty is in lieu of any other warranty either expressed or implied.

DICON GLOBAL INC. SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE, OR ANY SPECIAL INCIDENTAL, CONTINGENT OR CONSEQUENTIAL DAMAGE OF ANY KIND RESULTING FROM CARBON MONOXIDE. THE EXCLUSIVE REMEDY FOR BREACH OF THE LIMITED WARRANTY CONTAINED HEREIN IS THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT AT DICON GLOBAL INC.'S OPTION. IN NO CASE SHALL DICON GLOBAL INC.'S LIABILITY UNDER ANY OTHER REMEDY PRESCRIBED BY LAW EXCEED THE PURCHASE PRICE. YOUR CARBON MONOXIDE ALARM IS NOT A SUBSTITUTE FOR PROPERTY, DISABILITY, LIFE OR OTHER INSURANCE OF ANY KIND. APPROPRIATE COVERAGE IS YOUR RESPONSIBILITY. CONSULT YOUR INSURANCE AGENT.

This warranty gives you specific legal rights and you may have other rights which may vary from province to province.

Return to point of purchase for servicing. For repair or replacement within the warranty period, return this product (or send it postage prepaid) along with proof of purchase date to Dicon Global Inc. Please enclose a note stating the nature of the difficulty. Prior to sending, please call 1-800-387-4219 to establish a Returned Goods Authorization ("RGA") number and the latest instructions to serve you promptly. Please mark this number on the exterior of your package and send to:

Dicon Global Inc.
20 Steelcase Road West, Unit #3
Markham, Ontario, Canada L3R 1B2
www.diconglobal.com

N. Tips for the homeowner

Energy Conservation and Indoor Air Quality

Two steps that homeowners take to conserve energy may adversely affect indoor air quality.

Since air leakage can account for as much as 40% of heat loss, houses are being made more air tight. Reduced air leakage will contribute to higher concentrations of air contaminant's from indoor sources and can cause draft reversal in the furnace or fireplace chimney when the demand for air by fireplaces, furnaces and exhaust fans exceeds the air supplied by leakage area and supply ducts.

Converting from oil to gas, without taking steps to prevent chimney deterioration, will increase the risk of chimney blockage, draft failure and the associated release of combustion products into the house. Qualified contractors and inspection by the gas company are recommended.

Dirt and Blockage

Never insulate or try to seal up a draft hood, wind cap or exhaust vent on any gas appliance (furnace, hot water heater, range, dryer or space heater). Keep your equipment area clean. Don't store anything that could restrict air circulation close to equipment.

It is absolutely essential to your safety that panels and grills on the furnace are kept in place and that the fan compartment door is closed when the furnace is operating.

If you have a gas water heater, make sure that combustion air openings at the bottom of the tank and the opening below the draft diverter (on top of the tank next to the flue duct) remain unblocked.

If you have a gas dryer, the exhaust duct must be vented to the outside and have a hood at the end. Check that the exhaust system is not blocked by lint or debris and that the flapper in the hood moves freely.

For all fuel-burning equipment, make sure that vent hoods and pipes are not blocked by insulation, leaves or bird nests.

Using other equipment that consumes or exhausts household air

If you use exhaust fans, a fireplace or other fuel burning heaters or stoves:

Run exhaust fans for just a minute or two at a time. Prolonged use could remove too much air, and it wastes heat.

Do not run power attic vents during the winter or when your furnace is on.

When your fireplace, coal or wood stove is operating, open a window and close off warm air registers in the room or install a fresh air duct directly to the fireplace or stove so that it won't steal air from your furnace.

Confining or enclosing gas-fired equipment

If you have partitioned off your furnace and water heater, you may need additional ventilation.

Danger Signs

Stuffy, stale or smelly air, back drafts and soot from a fireplace or furnace chimney usually means your home needs more air for proper combustion and healthy living. For gas-fired equipment, mostly yellow (rather than clear blue) burner flames, a pilot light that keeps going out, or a smell of gas indicate trouble. Turn off the equipment and contact your gas company emergency service.

Additional Safety Tips

Have your fuel-burning equipment checked periodically for safety and efficiency by a qualified service technician.

If you are adding a wood or coal burning stove to a home, make sure that the stove is properly installed and vented. Check with the Building and Inspections Department of your local municipality or consult a heating contractor before installation. If you have already installed a wood or coal stove without a building permit or inspection, consult your local municipal building authority. Some "do-it-your-selfers" have unknowingly created dangerous conditions. Once you file for a permit, a qualified inspector will check your installation and explain how to rectify any mistakes.

Do not expose yourself to carbon monoxide through carelessness. Never operate a gasoline-powered engine in a confined or enclosed space such as a garage or tool shed. Never use a kerosene stove or charcoal grill in a confined space such as a closed garage or recreational van.

On masonry chimneys inspect the clean-out regularly to ensure that the chimney is free and clear of debris.

Regardless of the fuel your furnace, fireplace or stove uses, your chimney should be inspected from time to time by a competent chimney contractor.

Never try to add a "heat reclaimer" or "automatic flue damper" to your gas furnace or water heater. Gas installation safety codes prohibit use of these devices as an add-on to an existing furnace because of the risks of incorrect installation and mechanical failure.

When using paints, household cleaning supplies or similar materials, be sure that you're using them in a well ventilated area.

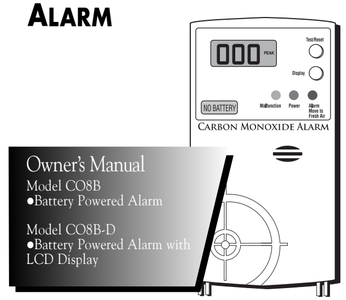
Following sensible maintenance and safety procedures in the home will give you fuel savings without endangering your health.

O. COMMONLY ASKED QUESTIONS

Q. What does the alarm sound like?
A. A series of 4 short beeps (loud 85 db sound) with synchronized red LED flashing.
Q. Should I position the unit in a high or low location?
A. Carbon monoxide is virtually the same weight as air and therefore, the alarm protects you in a high or low location.
Q. Will this unit detect smoke and fire?
A. No, a carbon monoxide alarm only detects carbon monoxide. Smoke alarms are still necessary.
Q. How do I test the unit?
A. Push the Test/Reset button. Refer to Section H. Do not test with car or vehicle exhaust. This method is dangerous to you and the pollutants from car or vehicle exhaust may damage the alarm.

AMERICAN SENSORS™

CARBON MONOXIDE ALARM



IMPORTANT: This manual must be read, followed and kept for future reference.

2502-A00458EVA